Radio Shack
A Division of Tandy Corporation

COMPUTER MERCHANDISING 817-390-3011
700 ONE TANDY CENTER, FORT WORTH, TEXAS 76102

August 30, 1978

Re: New Release of TRS-80 Disk
Operating System, TRSDOS
Version 2.1 (Replaces 2.0)

Dear TRS-80 Customer:

Enclosed is a TRSDOS Version 2.1 Advance Package containing:

TRSDOS 2.1 diskette
TRSDOS 2.1 Fact Sheet
"More Things You Should Know" Addenda for
Preliminary TRSDOS Instruction Manual
Preliminary TRSDOS Instruction Manual

You should understand that:

1) Version 2.1 replaces 2.0. It contains corrections of problems present in the older version, plus many new features. All this info is detailed in the 2.1 Fact Sheet.

2) Programs and data created under 2.0 can be used under 2.1.

3) A new instruction manual for 2.1 will be released soon and distributed to customers through the Radio Shack stores. Until it's ready, you should use the Preliminary Instruction Manual for TRSDOS 2.0, as updated by the 2.1 Fact Sheet and More Things You Should Know.

Thank you,

Computer Merchandising

TRSDOS 2.1 FACT SHEET

Some of you may be a little confused about the terminology, "Version 2.1", "first release", etc. You'll be hearing these terms often as TRSDOS is updated, so here's an explanation.

A new version represents a substantial expansion of the previous version. For example, new utilities, higher level language packages, etc., might be included in a new version. Such versions are numbered 1,2,3, etc.

On the other hand, a new release is simply an update of the previous release of a given version. This later release generally includes fixes of problems in the earlier version, wider implementations of commands, enhancements of commands, etc. The releases are numbered .1, .2, .3, etc.

Therefore when we talk about "Version X.Y", that's short for Release Y of Version X.

NOTE: Uppercase letters, blanks(B) and punctuation are required as shown. Lowercase letters indicate parameters and options you supply from a specified set as given in that command's syntax description. See Preliminary Instructions for 2.0 for an explanation of filespec, drivespec, password, etc.

Corrections of problems in 2.0

1. Disk file-space allocation and release (SAVE and KILL) now function correctly. Use of a near-full or full diskette is okay.

2. FORMAT and BACKUP commands have been fixed so they do not automatically re-boot the system upon completion. This gives you a chance to see if any error messages were generated. Pressing ENTER will then re-boot the system.

3. The DEBUG utility can (and should be) deleted from RAM when you're through using it, by pressing RESET and then entering the commands
   DEBUG(OFF) ENTER
   DIR ENTER

   This command sequence will prevent unexpected re-entry into the DEBUG program. NOTE: To exit the DEBUG utility to TRSDOS, type
   G4020 ENTER .

4. The LIST command now positions the cursor properly.

Commands Added or Changed in 2.1

APPEND␣filespec1␣TO␣filespec2

Appends the first file specified to the end of the second file specified. The first file is not changed. This command is primarily for use with data files.
Example:

APP␣DB␣DATA7␣TO␣DATA8

ATTRIB␣filespec␣(attrib,ACC=psw1,UPD=psw2,PROT=param)

where attrib = I (for Invisible). Optional and usually omitted.
psw1 = new access password. Optional.
psw2 = new update password. Optional.
param = one of the following: KILL,RENAME,WRITE,READ,EXEC. Optional.

This command lets you assign two passwords to the file specified: an access password, which will allow access to the file as determined by the PROT parameter; and an update password, which will allow total access to the file. Note that the protection levels form a hierarchy, and that each level implies access to all lower levels:

KILL implies total access.
RENAME implies access to rename, write, read and execute.
WRITE implies access to write, read and execute.
READ implies access to read and execute.
EXEC implies access to execute only.

The I (Invisible) attribute is optional. It makes the file invisible to a normal DIR command (see DIR).

Be very careful in assigning protection attributes to a file. If you forget the password, the file cannot be accessed or updated, except via the PROT command and Master Password (see PROT below).
Examples:

ATTRIB␣PROG1/BAS.PSWD␣(ACC=PSW1,UPD=PSW2,PROT=READ)
assigns new passwords to PROG1.

ATTRIB␣PROG1/BAS.PSWD␣(ACC=,UPD=)
removes the passwords from PROG1.

DEVICE

This command has no arguments or parameters. It simply lists all currently defined I/O devices: KI (keyboard),DO (Video Display),and PR (Line Printer).

DIR#:dB(param1,param2,param3)

where d is an optional drive specification (d=0,1,2 or 3) and param1, param2, param3 are optional parameters, including any, all or none of the following:

S Display all System and non-Invisible files.
I Display all Invisible and non-System files.
A Give the disk space allocation for all files displayed.

Disk space allocation is indicated as follows: LRL (Logical Record Length), EOF (End Of File), and GRANS (number of Granules used: each granule=½ track, or 1.25K).

Examples:

DIR

displays user files (non-System, non-Invisible) on drive 0.

DIR#:1B(1,S,A)

displays all files on drive 1, including each file's disk space allocation.

NOTE: DIR lists a P beside all user files with non-blank passwords.

If the Directory listing cannot fit on the screen, only the first 12 lines will be displayed. Press [ENTER] to see the next 16 lines of the listing.

DUMP filespecA(START=X'AAAA',END=X'BBBB',TRA=X'CCCC')

where AAAA, BBBB, CCCC are hexadecimal addresses in RAM, and AAAA, BBBB are above 6fff.

This command writes the contents of memory from the specified start address to the end address, and specifies a transfer address where execution of the program is to begin after the file is called for execution. The main purpose

of DUMP is to let you create disk files containing machine code programs (created with TBUG, Editor/Assembler, BASIC POKEs, etc., or loaded from tape under SYSTEM command).

Most LEVEL II System tapes cannot be executed under DOS, because of differences between LEVEL II and DOS in terms of RAM use. See More Things You Should Know, Item 6.

FREE

This function requires no arguments or parameters. It displays the amount of free space remaining on all currently in-use drives, in terms of files available and unused granules.

Each diskette can support up to 48 user files.

LIB

Requires no parameters or arguments. LIB displays all TRSDOS system commands available.

LOAD filespec

Loads the specified file (which should contain Z-80 object code) into RAM and returns control to TRSDOS. The specified file would normally have been created by a DUMP or TAPEDISK command.

PROTECT:dN(PW,param)

where :d is an optional drive spec, PW is an optional explicit parameter, and param is an optional parameter, either LOCK or UNLOCK.

This command changes the protection status of all non-System files on the specified drive. Drive 0 is the default drive if none is specified.

To use PROT, you must know the diskette's Master Password, assigned during FORMAT or BACKUP of the diskette. (Your TRSDOS diskette has the password, PASSWORD.)

To change the Master Password, specify PW. To remove passwords from all user files, specify UNLOCK. To place the Master password on all user files, specify LOCK.

Examples:

PROT:1(UNLOCK)

After you enter this command, TRSDOS asks for the Master Password. If you enter the right word, all passwords will be removed from user files on the drive 1 diskette.

PROT (PW,LOCK)

After you specify the Master Password correctly, TRSDOS will prompt you to enter a new Master Password. Then this new password will be assigned to the drive 0 diskette and to all its user files.

RENAME filespec1 TO filespec2

Allows you to change the name (and/or extension) of the first file specified as described in the second filespecification. You cannot change or add passwords with RENAME. The file's protection status also remains unchanged.

VERIFY (param)

where param = ON or OFF. VERIFY (ON) causes TRSDOS to verify all user disk-write operations (for example, file-writes from BASIC). VERIFY (OFF) disables this function.

VERIFY does not affect System disk writes; they are always verified. Also note that TRSDOS powers up in a VERIFY (OFF) condition.

TAPEDISK

This is a special utility which allows you to load Radio Shack SYSTEM tapes into RAM, and then down the file from RAM into a specified file on the disk.

Do not attempt to read in tape files which load below hexadecimal address 54F4. See More Things You Should Know, Item 6.

TAPEDISK [ENTER]

initiates the TAPEDISK program and returns with a special prompt.

?_

You then enter one of three commands:

C [ENTER]
turns on the Recorder (Recorder #1 if two are connected) and loads a SYSTEM-format tape into RAM. When the file has loaded, the prompt returns. You can then load another SYSTEM tape into RAM by typing C [ENTER] again, or enter another command.

F0filespec0AAAA0BBBB0CCCC [ENTER]

is the dump to disk command, where filespec is the desired file name and must include a drive specification; AAAA is the starting address in RAM; BBBB the ending address; and CCCC the entry point for execution of the file. All addresses are in hexadecimal form. After the dump, the prompt returns.

E [ENTER]

returns you to TRSDOS.

DISKDUMP/BAS

is a special utility which allows you to make a sector-by-sector examination of any specified user file. DISKDUMP/BAS is a BASIC program, so you must be in DISK BASIC and press [ENTER] for the FILES? and MEMORY SIZE? questions.

The program is written to dump to the Line Printer; if you do not have one connected, change all LPRINTs to PRINTS and the dump will go to the Display. In line 160, delete everything after 160 GET1,SN.
The program prompts you to enter the filename and then to enter the sector you want to examine. You can simply press [ENTER] and the sector examination will be sequential, starting with sector 1. Note that if you attempt to examine a sector which is higher than the highest sector used by that file, no error message is given and the sectors will appear as zero-value bytes.

The sectors are printed 16 bytes at a time; and these 16 bytes are printed first in hex code and then with the corresponding ASCII code. The ASCII representation is surrounded by ! symbols. If the hex code does not correspond to an alphanumeric character, a period is returned for that byte in the ASCII representation.

This program will be very useful in helping you understand random and sequential data formats as stored on disk.

CLOCK (param)

where param is either ON or OFF. If no parameter is given, ON is assumed. This function was in 2.0; however, the OFF capability has been added.

TRACE (param)

where param is either ON or OFF. If no parameter is given, ON is assumed. TRACE was in 2.0, but the OFF capability has been added.

More Things You Should Know

1. Always follow these rules when connecting Mini Disk drives to the TRS-80:

   a) You can use from one to four drives with TRSDOS. However, your set of drives must include one (and only one) drive with Radio Shack Catalog Number 26-1160. All other optional drives must bear Catalog Number 26-1161.

   b) Drive 26-1160 must always be the "terminal drive" (the furthest away from the Expansion Interface), and there must be no empty connectors between the terminal drive and the Expansion Interface.

   c) Also remember that TRSDOS refers to the drives by the numbers 0,1,2 and 3, where drive 0 is closest to the Expansion Interface, and drive 3 is furthest from it.

2. To copy BASIC program files from a 2.0 to a 2.1 diskette using only one drive (drive 0), first CSAVE the 2.0 file onto cassette; then reboot the system with a 2.1 diskette, CLOAD the file, and SAVE it onto the 2.1 diskette.

3. The maximum TAB for an LPRINT statement is 63. The Line Printer won't tab past column 63.

   There's a simple way around this limitation, using the STRING$ function to simulate tabs past column 63. The idea is to print out a string of blanks to move the print head to the desired position. The STRING$ function will produce such a string of blanks. However, it will only move the print head relative to the current print position, so you have to do a few calculations to move the print head to a particular column.

   In general,

   TAB(n) can be simulated by STRING$(N-1-current print position,32)

   N-1-current print position locates the desired column in relation to the current position; 32 is the ASCII code for blank.

   Example:

```
LPRINT TAB (5)"NAME"TAB(30)"ADDRESS"STRING$(63,32)"BALANCE"
```

   will print "NAME" at column 5, "ADDRESS" at column 30, and "BALANCE" at column 100.

4. PRINT#n (write to sequential disk file) puts information on the diskette in the same format that a PRINT (to Display) would put the same information on the Video Display. It does not use the PRINT#-n (print to tape) format. For example, if A=3.14159,B=-2.3, then
PRINT#1,A,B
would print the following in file 1:

```
b3.14159bbbbbbbb-2.3b
```

But

```
PRINT#1,A;B
```

would print the data without all the extra spaces:

```
b3.14159b-2.3b
```

So be sure to use semicolons as delimiters when writing numeric data to a disk file with PRINT#n.

5. Using PRINT#n to write strings to sequential files also requires special attention, because delimiters will not automatically be inserted after string data.

For example, if A$="JOHN SMITH" and B$="JILL SMITH", then

```
PRINT#1,A$,B$
```

will write the data on disk as follows:

```
JOHN SMITHJILL SMITH
```

You will not be able to read the two names into separate variables with an INPUT#n statement.

To avoid this, place an explicit comma after every string embedded in a PRINT# statement. For example,

```
PRINT#1,A$;",";B$
```

will allow you to retrieve A$ and B$ individually with an

```
INPUT#1,A$,B$
```

To write strings which include commas and/or carriage returns, put quotes around the string by using CHR$(34). For example:

```
PRINT#1,CHR$(34);A$;CHR$(34)
```

Experiment with these techniques, and then use the DISKDUMP program to examine exactly what was written to the file.

6. The only currently available Radio Shack SYSTEM tape that can now be loaded under DISK BASIC or DOS and then placed on the diskette for later use is the RENUM program.

   First load and dump RENUM to disk using TAPEDISK. Then to use RENUM, type RENUM [ENTER]

   BASIC2 [ENTER]
   and answer the memory size? question with 31919. You can use the program in LEVEL II BASIC.

7. If you are able to define a distinct, repeatable problem which you are not able to solve, write down the exact circumstances (machine configuration and sequence which causes the problem) and the following office will make every effort to find the solution. This does not include customer programming errors, as we do not have the facilities to do this now.

   TRS-80 Problems Desk
   1100 One Tandy Center
   Fort Worth, TX 76102

   Announcements of new versions or releases will automatically be sent to you.

8. The only time you should disable the realtime clock (with the DISK BASIC command, CMD"T") is immediately before you instruct the system to perform cassette I/O. Be sure to re-enable the clock (with the DISK BASIC command, CMD"R") immediately after the cassette I/O operation is completed. You could destroy the TRSDOS system files by allowing disk I/O operations when the clock is off. Follow the above precautions to eliminate this possibility.